Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1-28. (Canceled)

29. (Currently Amended) ~~The method of claim 28,~~ A method for processing a substrate comprising the steps of:

depositing a layer of high surface area to volume ratio material having a non-helical columnar structure over a surface of said substrate;

removing at least a portion of said high surface area to volume ratio material layer;

depositing a stencil layer on said substrate; and

patterning said stencil layer and selectively removing a portion of said stencil layer, thereby leaving an exposed portion of said substrate and at least one retained portion of said stencil layer,

wherein the step of depositing a layer of high surface area to volume ratio material comprises depositing said high surface area to volume ratio material upon said exposed surface of said substrate and on said at least one retained portion of said stencil layer, further comprising the step of lifting off said stencil layer, thereby also removing a portion of said high surface area to volume ratio material layer deposited thereon.

30. (Currently Amended) The method of claim 29, further comprising the step of [[(c)]] depositing a second layer over said substrate and said high surface area to volume ratio material layer.

31. (Currently Amended) The method of claim 30, further comprising the step of creating through-holes through said second layer for the removal of said high surface to volume ratio material layer ~~in step (c)~~ through said created through-holes to produce a cavity structure.

32. (Currently Amended) The method of claim 31, after removal of said high surface area to volume ratio material layer ~~in step (c)~~ through said created through-holes to produce a cavity structure, thereafter further comprising the step of [[(d)]] depositing a layer that blocks said through-holes.

33. (Currently Amended) The method of claim 31, after removal of said columnar void layer ~~in step (c)~~ through said created through-holes to produce a cavity structure, thereafter further comprising the steps of adding a gas or liquid in said cavity structure; and depositing a layer that blocks said through-holes and seals said cavity structure.

34-72. (Canceled)

73. (Original) The method of creating a cavity structure in a substrate comprising:

a. forming at least one stencil layer over a substrate;

b. removing a portion of said stencil layer thereby created an exposed portion of said substrate;

c. forming a high surface area to volume ratio material layer over said portion of said stencil layer and said exposed substrate;

d. lifting off a portion of said stencil layer, thereby also removing a portion of said high surface area to volume ratio material layer formed thereover and leaving the portion of said high surface area to volume ratio material layer formed on said exposed substrate;

e. forming at least one layer over said substrate and said high surface area to volume ratio material layer; and

f. removing said high surface area to volume ratio material layer to form a cavity structure.

74. (Previously Presented) The method of claim 73, wherein said stencil layer comprises a material selected from the group consisting of photoresists, nitrides, oxides, metals, polymers, dielectrics and combinations thereof.

75. (Previously Presented) The method of claim 73, wherein said substrate is selected from the group consisting of silicon wafers, quartz, glass, organic materials, polymers, ceramics, semiconductor, metals, insulators, and combinations thereof.

76. (Previously Presented) The method of claim 73, whereby removing said stencil layer in step (b) is performed using a technique selected from a group consisting of dissolving, dry etching, wet etching and combinations thereof.

77. (Original) The method of claim 73, wherein said high surface area to volume ratio material layer is deposited.

78. (Original) The method of claim 73, wherein said high surface area to volume ratio material is a columnar void layer.

79. (Original) The method of claim 78, wherein said columnar void layer is a nano-scale composition comprising:

(a) a plurality of uniform essentially non-contacting basic columnar-like units penetrating a continuous void wherein said units have adjustable regular spacing, adjustable uniform height, and adjustable variable diameter, and

(b) said plurality of basic columnar-like units are uniformly orientated and disposed over said substrate.

80. (Previously Presented) The method of claim 73, wherein lifting off said stencil layer in step (d) is performed by dissolving, etching or combinations thereof.

81. (Previously Presented) The method of claim 73, wherein said at least one layer is a material selected from the group consisting of chemically active materials, polymers, insulators, nitrides, oxides, piezoelectrics, ferroelectrics, metals, pyroelectrics, biological materials and semiconductors.

82. (Previously Presented) The method of claim 73, wherein removing the high surface area to volume ratio material layer in step (f) is performed by chemical means, mechanical means or combinations thereof.

83. (Original) The method of claim 73, further comprising the step of creating through-holes to access said high surface area to volume ratio material layer.

84. (Original) The method of claim 73, further comprising the step of adding gas or liquid into said cavity structure after said high surface area to volume ratio material layer is removed in step (f).

85. (Original) The method of claim 83, further comprising the step of depositing a further layer, wherein said further layer blocks said through-holes.

86. (Previously Presented) The method of claim 85, wherein said further layer is a material selected from the group consisting of dielectric, polymeric, metal, photoresist, nitride, oxide, biological, semiconductor, and insulator materials and combinations thereof.

87. (Previously Presented) The method of claim 73, wherein said cavity structure has a height of at least about 10 nm.

88. (Previously Presented) The method of claim 73, wherein said cavity structure has a width of at least about 10 nm.

89. (Previously Presented) The method of claim 73, wherein formation of said cavity structure provides for the fabrication of a use selected from the group consisting of MEMS; field emission sources; bolometric structures; accelerometers; light trapping; resonance; field shaping; transmission; acoustic trapping; display micro-mirror formations; biomedical and medical devices; sorting structures for functions such as DNA and proteomic sorting; cell nutrition, growth control, or both; capillary functions; gettering regions for solid phase crystallization or silicon on insulator structures; interlayer stress control; optical waveguide and optical device applications; fluid channels for electrical, chemical, and electrochemical sensors, chromatography, chemical reactant/product transport; fuel cells; display, and molecular sorting.

90. (Original) A method of producing at least one contact region between a first and a second material system over a substrate comprising the steps of:

a. forming a first material system over said substrate;

b. etching a portion of said first material system;

c. forming high surface area to volume ratio material layer over said first material system and said substrate;

d. removing a portion of said high surface area to volume ratio material layer to expose a portion of said first material system;

e. forming a second material system over said high surface area to volume ratio material layer and exposed portions of said first material system, so that a portion of said second material system contacts a portion of said first material system; and

f. removing said high surface area to volume ratio material layer, thereby freeing a portion between said first and second material systems while maintaining said at least one contact region.

91. (Previously Presented) The method of claim 90, wherein said first material system is selected from the group consisting of metals, semiconductors, chemically active materials,

polymers, insulators, nitrides, oxides, piezoelectrics, ferroelectrics, pyroelectrics, biological materials, organic materials and combinations thereof.

92. (Previously Presented) The method of claim 90, wherein said substrate is a material selected from the group consisting of silicon wafers, quartz, glass, organic materials, polymers, ceramics, semiconductor, metals, and combinations thereof.

93. (Previously Presented) The method of claim 90, wherein said second material system is selected from the group consisting of metals, semiconductors, chemically active materials, polymers, insulators, nitrides, oxides, piezoelectrics, ferroelectrics, pyroelectrics, biological materials, organic materials, and combinations thereof.

94. (Original) The method of claim 90, wherein removal of said high surface area to volume ratio material layer is facilitated by chemical means, physical means or combination thereof.

95. (Original) The method of claim 94, wherein removal of said high surface area to volume ratio material layer by chemical means has an etch rate of 25 μm per minute or less.

96. (Previously Presented) The method of claim 90, wherein production of at least one contact region between a first and a second material system provides for fabrication of a structure selected from the group consisting of MEMS devices, cantilever structures, micro-switch structures, micro-mirror structure, actuators, field emission structures, bolometric structures, accelerometers, biomedical and medical devices, sorting and affixing structures, and electrical, chemical, and electrochemical sensors.

97. (Canceled)

98. (Withdrawn) A method for fabricating a fuel cell comprising:

a. depositing a masking layer on a substrate;

b. defining the locations of the channel regions in said masking layer using a stencil layer;

c. covering said defined regions in said masking layer and said stencil layer in adjoining regions with a sacrificial layer material;

d. lifting off said sacrificial layer material in the stencil covered regions by dissolving or etching away said stencil layer;

e. depositing an anode material over the entire resulting surface for the layer formed in step (d);

f. patterning said anode material to form an anode;

g. depositing an electrolyte on the resulting surface for the layer formed in step (d);

h. employing means to access said sacrificial layer;

i. using such means to etch or dissolve the sacrificial layer in the regions that are to be the channels;

j. using these regions of removed sacrificial material as defining regions for subsequent or continued etching or dissolving of underlying material to create said channels bearing fuel, oxidant, or both;

k. depositing and patterning a cathode material on the resulting surface for the layer formed in step (d); and

l. depositing and patterning interconnects and contacts on the resulting surface for the layer formed in step (d), thereby providing electrical current flow and power production for said fuel cell.

99. (Withdrawn) The method of claim 1 wherein said high surface area to volume ratio material performs an affixing, sorting, immobilizing, or combination thereof function.